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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/355,635	08/02/1999	PAUL JAMES CONROY	72005-7	6737

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EXAMINER

MIGGINS, MICHAEL C

ART UNIT	PAPER NUMBER
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1772

DATE MAILED: 12/23/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/355,635

Applicant(s)

CONROY ET AL.

Examiner

Michael C. Miggins

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 30 October 2003.
- 2a) ☐ This action is FINAL. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 20-40 and 42-49 is/are pending in the application.
- 4a) Of the above claim(s) 20-29 and 42-48 is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 30-40 and 49 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☒ Claim(s) 20-40 and 42-49 are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. §§ 119 and 120

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.
- 13) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application) since a specific reference was included in the first sentence of the specification or in an Application Data Sheet. 37 CFR 1.78.
- a) ☐ The translation of the foreign language provisional application has been received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121 since a specific reference was included in the first sentence of the specification or in an Application Data Sheet. 37 CFR 1.78.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____
- 4) ☐ Interview Summary (PTO-413) Paper No(s) _____
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____

DETAILED ACTION

Continued Examination Under 37 CFR 1.114

1. A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on 10/30/03 has been entered.

Election/Restrictions

2. After careful review, it has been found that the original restriction under 35 U.S.C. 121 (US restriction practice) in paper #6, pages 2-3, paragraphs 1-7 was incorrect because the instant application is in fact a national stage entry (371) of PCT/GB98/00305 and a restriction requirement should have been made using lack of unity of invention, 371 or PCT practice.

An original election/restriction according to 35 U.S.C. 121 (US restriction practice) was set forth in paper #6, pages 2-3, paragraphs 1-7 between original product claims 20-29 and method claims 1-19. It was believed that a telephonic election of the product claims had been made and a first action on the merits was issued, paper #6, in which the method claims 1-19 were withdrawn and rejections were issued against the product claims 20-29 (paper #6, pages 3-6, paragraphs 8-13). However, there was a misunderstanding about which claims applicant intended to elect and in the letter of

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12/11/01, paper #8, applicant elected the method claims 1-19. Thus, a supplemental first action on the merits was issued on 9/9/02, paper #9, in which the product claims 20-29 were withdrawn and rejections were issued against the method claims 1-19 (paper #9, pages 2-6, paragraphs 2-7). Applicant subsequently canceled claims 1-19, and added new claims 30-48 via amendment B, paper #11. A final rejection was issued against method claims 30-41 on 5/2/03, paper #12, pages 3-7, paragraphs 6-7 and product claims 42-48 were withdrawn from consideration due to election by original presentation (see paper #12, pages 2-3, paragraphs 1-4). Applicant has now filed an RCE, 10/30/03.

The original election/restriction based on US practice set forth in paper #6, pages 2-3, paragraphs 1-7 was incorrect and a restriction requirement should have been made using lack of unity of invention, 371 or PCT, practice. In order to correct the record, a restriction requirement is set forth below based on lack of unity of invention of currently pending claims 20-40 and 42-49 (the limitations from method claim 41 have been written into base claim 30 and the method claim 49 has been added via the RCE/amendment C of 10/30/03, papers 15-16). However, applicant has already made an election of the method claims via applicant's letter of 12/11/01, paper #8. Therefore, product claims 20-29 and 42-48 have been withdrawn from consideration.

3. Restriction is required under 35 U.S.C. 121 and 372.

This application contains the following inventions or groups of inventions which are not so linked as to form a single general inventive concept under PCT Rule 13.1.

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In accordance with 37 CFR 1.499, applicant is required, in reply to this action, to elect a single invention to which the claims must be restricted.

Group I, claim(s) 20-29, drawn to a cementitious composition.

Group II, claim(s) 30-40 and 49, drawn to a method for protecting a metal drinking water pipe.

Group III, claim(s) 42-48, drawn to a drinking water pipe.

4. The inventions listed as Groups I, II and III do not relate to a single general inventive concept under PCT Rule 13.1 because, under PCT Rule 13.2, they lack the same or corresponding special technical features for the following reasons: Although Groups I, II and III share a common technical feature with regards to the cement in combination with metakaolin, lack of unity of invention is lacking because neither Group I, II or III make a contribution over the prior art. Group I is anticipated by Burkes et al. (U.S. Patent No. 5,531,824) since Burkes et al. teach a cementitious composition comprising at least one cement in combination with metakaolin (column 2, lines 55-67). Group II is obviated by Heinrich et al. (U.S. Patent No. 4,454,172) and Burkes et al. as described in the 103 rejections below. Group III is obviated by Heinrich et al. (U.S. Patent No. 4,454,172) and Burkes et al. for the same reasons as Group II, since Group III is drawn to a drinking water pipe comprising a cement in combination with metakaolin.

5. Applicant is reminded that upon the cancellation of claims to a non-elected invention, the inventorship must be amended in compliance with 37 CFR 1.48(b) if one or more of the currently named inventors is no longer an inventor of at least one claim

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remaining in the application. Any amendment of inventorship must be accompanied by a request under 37 CFR 1.48(b) and by the fee required under 37 CFR 1.17(i).

WITHDRAWN REJECTIONS

6. The 35 USC 103(a) rejection of claims 30-41 set forth in paper #12, pages 3-7, paragraphs 6-7 has been withdrawn.

REJECTIONS REPEATED

7. There are no rejections repeated.

ANSWERS TO APPLICANT'S ARGUMENTS

8. Applicant's arguments with respect to claims 30-41 and 49 have been considered but are moot in view of the new ground(s) of rejection.

Claim Rejections - 35 USC § 103

9. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

10. Claims 30-35, 38 and 40 are rejected under 35 U.S.C. 103(a) as being unpatentable over Heinrich et al. (U.S. Patent No. 4,454,172) in view of Burkes et al. (U.S. Patent No. 5,531,824).

Claim 30 recites an intended use (the limitation, "... used for delivering drinking water from corrosion due to water passing therethrough ...") and has been given little too no patentable weight since it has been held that a recitation with respect to the manner in which a claimed apparatus is intended to be employed does not differentiate the claimed apparatus from a prior art apparatus satisfying the claimed structural limitations. *Ex parte Masham*, 2 USPQ2d 1647 (1987).

Heinrich et al. teach a method for protecting a metal drinking water pipe (column 2, lines 55-61) comprising the steps of (a) providing a drinking water pipe, (b) depositing a cementitious composition on an inside surface of said metal drinking water pipe to form a lining therein (column 2, lines 55 through column 3, line 10), and (c) hardening said cementitious composition (column 3, lines 18-24) (applies to instant claim 30).

Heinrich et al. also teach that the cementitious composition further comprises water (column 4, lines 4-6) and including, between steps (a) and (b), the step of mixing the cementitious composition with sand to form a cementitious mortar composition, prior to being applied to said surface (column 4, lines 23-33) (applies to instant claims 38 and 40).

Heinrich et al. disclose applicant's invention substantially as claimed. However, Heinrich et al. fail to disclose that the cementitious composition comprises a cement and metakaolin, wherein said cement replacement material is at least one of ground granulated blast furnace slag and pulverized fuel ash, wherein the cement is a hydraulic cement, and wherein the hydraulic cement is calcium silicate.

Burkes et al. teach a cementitious composition which comprises a cement and metakaolin (column 2, lines 55-67), wherein said cement replacement material is at least one of ground granulated blast furnace slag and pulverized fuel ash (column 2, lines 55-67), wherein the cement is a hydraulic cement (since portland cement is a hydraulic cement, column 2, lines 55-57), and wherein the hydraulic cement is calcium silicate (since portland cement is calcium silicate, column 2, lines 55-57) (applies to instant claims 30 and 33-35) in a concrete lined pipe (column 4, lines 1-4) for the purpose of providing improved hardness and compressive strength and decreased permeability to liquids.

The references are combinable because both references are drawn to concrete-lined pipes and Burkes et al. provide improved hardness and compressive strength and decreased permeability to liquids. Although Heinrich et al. disclose that their invention would be unsuitable for regular mortar made on the basis of portland cement (column 3, lines 25-37), the portland cement composition of Burkes et al. is not a regular portland cement composition since Burkes et al. teach the addition of metakaolin and/or finely-ground blast furnace slag (column 2, lines 55-67). Furthermore, Heinrich et al. go on to mention that their invention is well suited for alumina containing mortar compositions (Heinrich et al., column 3, lines 25-37) and the cement composition of Burkes et al. contains alumina (Burkes et al., column 3, lines 1-13).

Therefore it would have been obvious to one of ordinary skill in the art at the time applicant's invention was made to have provided a cementitious composition which comprises a cement and metakaolin, wherein said cement replacement material is at

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least one of ground granulated blast furnace slag and pulverized fuel ash, wherein the cement is a hydraulic cement, and wherein the hydraulic cement is calcium silicate in the concrete lined pipe of Heinrich et al. in order to provide improved hardness and compressive strength and decreased permeability to liquids as taught or suggested by Burkes et al..

The combined teachings of Heinrich et al. and Burkes et al. disclose the claimed invention except for the amount of metakaolin and the amount of cement replacement materials based on the dry weight recited in claims 30-32. However, Burkes et al. teach the addition of 10-46 weight percent of metakaolin and/or finely-ground blast furnace slag (a cement replacement material) to a cement mixture (column 2, lines 55-67) and that the addition of metakaolin and/or finely-ground blast furnace slag to cement creates a hard, impervious, alkali metal aluminum silicate layer which forms in the pores of specially formulated concrete which provides increased hardness and compressive strength while providing a decrease in permeability if liquids (column 2, lines 33-51). Therefore, increasing or decreasing the amount of metakaolin and/or finely-ground blast furnace slag would have a direct effect on the hardness, compressive strength and permeability of liquids.

Therefore one of ordinary skill in the art would have recognized that the amount of metakaolin and the amount of cement replacement materials based on the dry weight would be readily determined through routine experimentation depending on the desired end results absent some showing of unexpected results. Further, it would have been obvious to one having ordinary skill in the art at the time the invention was made to

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have provided the amount of metakaolin and the amount of cement replacement materials based on the dry weight recited in claims 30-32 in a cement mixture in order to provide improved hardness and compressive strength and decreased permeability to liquids, since it has been held that where the general conditions of a claim are disclosed in the prior art, discovering the optimum or workable ranges or an optimum value of a result effective variable involves only routine skill in the art (applies to instant claims 30-32). *In re Boesch*, 617 F.2d 272, 205 USPQ 215 (CCPA 1980).

11. Claims 36-37, 39 and 49 are rejected under 35 U.S.C. 103(a) as being unpatentable over Heinrich et al. (U.S. Patent No. 4,454,172) in view of Burkes et al. (U.S. Patent No. 5,531,824), as applied to claims 30-35, 38 and 40 above, and further in view of Allen et al. (WO 95/11863).

Heinrich et al. disclose applicant's invention substantially as claimed. However, Heinrich et al. fail to disclose that the cementitious composition further comprises an aggregate material and wherein the cementitious composition further comprises fibers as reinforcement.

Allen et al. teach a method for protecting a metal pipe (abstract) comprising the steps of providing a metal pipe, depositing a cementitious composition on an inside surface of said metal pipe (page 2, lines 5-19), wherein the cementitious material further comprises an aggregate material (page 3, lines 24-30) and wherein the cementitious composition further comprises fibers as reinforcement (page 3, lines 16-30) (applies to

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instant claims 36-37) for the purpose of providing a liner that is less costly to produce and does not crack (page 1, lines 22-24).

Therefore it would have been obvious to one of ordinary skill in the art at the time applicant's invention was made to have provided a cementitious composition which further comprises an aggregate material and wherein the cementitious composition further comprises fibers as reinforcement in the concrete lined pipe of Heinrich et al. in order to provide a liner that is less costly to produce and does not crack as taught or suggested by Allen et al..

The combined teachings of Heinrich et al. and Allen et al. disclose the claimed invention except for the amount of water recited in claim 39. However, Allen et al. teach that the amount of shrinkage which results in cracking of the cement is dependant upon how much water is present in the mixture (see page 5, lines 13-21). Thus one of ordinary skill in the art would have recognized that the amount of water would be readily determined through routine experimentation depending on the desired end results absent some showing of unexpected results. Further, it would have been obvious to one having ordinary skill in the art at the time the invention was made to have provided water in the amount recited by applicant in claim 39 in order to control shrinkage, since it has been held that where the general conditions of a claim are disclosed in the prior art, discovering the optimum or workable ranges or an optimum value of a result effective variable involves only routine skill in the art (applies to instant claim 39). *In re Boesch*, 617 F.2d 272, 205 USPQ 215 (CCPA 1980).

With regards to claim 49, none of the references specifically teach a method consisting of steps (a) providing a metal drinking water pipe, (b) depositing the cementitious composition on an inside surface of said drinking water pipe, wherein said cementitious composition comprising a cement and 5-30 weight percent metakaolin, and hardening said cementitious composition and (c) hardening said cementitious composition. However, Allen et al. disclose a simple method for forming a cement lining in pipe comprising the steps of mixing a cement slurry containing type-G portland cement, fibers and silica flour, depositing the cement slurry and curing (page 6, lines 17-27) in order to provide a liner that is less costly to produce and does not crack (page 1, lines 22-24). Therefore, it would have been obvious to one of ordinary skill in the art to eliminate the costly and timely treatment step of Heinrich et al. (column 3, lines 1-10) in order to provide a liner that is less costly to produce and does not crack as suggested by Allen et al. (applies to instant claim 49).

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Michael C. Miggins whose telephone number is (703) 305-0915. The examiner can normally be reached on Monday-Friday; 1:30-10:00 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Pyon Harold can be reached on (703) 308-4251. The fax phone number for the organization where this application or proceeding is assigned is (703) 872-9310.

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Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 308-0661.

Michael C. Miggins
Examiner
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A handwritten signature in black ink, appearing to read "Michael C. Miggins", written in a cursive style.

MCM
December 1, 2003